**Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1.- 50. (cancelled)

51. (new) A crystalline substrate comprising an optical multi-layer system thereon, which substrate is obtainable by

(a) applying a first free-flowing composition which comprises nanoscale inorganic solid particles comprising at least one of a polymerizable and a polycondensable organic group to at least one surface of a crystalline substrate;

(b) at least one of polymerizing and polycondensing the organic groups of the solid particles to form a first organically crosslinked layer on the at least one surface;

(c) applying a second free-flowing composition which comprises nanoscale inorganic solid particles comprising at least one of a polymerizable and a polycondensable organic group to the organically crosslinked layer of (b), the second composition giving rise to a different refractive index than the first composition;

(d) at least one of polymerizing and polycondensing the organic groups of the solid particles of the applied second composition to form a second organically crosslinked layer on the first organically crosslinked layer;

(e) optionally, applying a further free-flowing composition which comprises nanoscale

inorganic solid particles comprising at least one of a polymerizable and a polycondensable organic group to the organically crosslinked layer of (d) and at least one of polymerizing and polycondensing the organic groups of the solid particles of the further composition to form a further organically crosslinked layer on the second organically crosslinked layer;

(f) optionally, repeating (e) one or more times to form one or more further organically crosslinked layers; and

(g) single-stage thermal consolidation of the organically crosslinked layers present and burnout of organic constituents thereof;

with the proviso that for the uppermost layer the nanoscale inorganic solid particles do not comprise a polymerizable or polycondensable organic group so that for the uppermost layer a polymerization or polycondensation of groups of the solid particles with formation of organic crosslinking does not take place before or during (g).

52. (new) The substrate of claim 51, wherein the crystalline substrate comprises one or more of silicon, lithium niobate, lithium tantalate, quartz, sapphire, PbS and selenium.

53. (new) The substrate of claim 51, wherein the crystalline substrate comprises silicon.

54. (new) The substrate of claim 51, wherein the crystalline substrate comprises on or more of PbS and selenium.

55. (new) The substrate of claim 51, wherein the crystalline substrate comprises at least one of a precious stone and a semi-precious stone.

56. (new) The substrate of claim 51, wherein the crystalline substrate is planar.

57. (new) The substrate of claim 51, wherein the crystalline substrate is curved.

58. (new) The substrate of claim 51, wherein the substrate is transparent.

59. (new) The substrate of claim 51, wherein two sides of the substrate are provided with an optical multi-layer system.

60. (new) The substrate of claim 51, wherein the crystalline substrate comprises one or more of a sheet, a watchglass, an instrument cover glass, a wafer, a crystalline detector and an optical filter.

61. (new) The substrate of claim 60, wherein the crystalline substrate comprises at least one of a sheet of sapphire, a watchglass of sapphire and a silicon wafer.

62. (new) The substrate of claim 60, wherein the crystalline substrate comprises a watchglass of sapphire.

63. (new) The substrate of claim 60, wherein the crystalline substrate comprises a silicon wafer.

64. (new) The substrate of claim 52, wherein the nanoscale particles comprise one or more compounds selected from oxides, sulfides, selenides and tellurides of semimetals and metals.

65. (new) The substrate of claim 64, wherein the polymerizable or polycondensable organic groups comprise organic radicals which comprise at least one of a (meth)acryloyl group, a vinyl group, an allyl group and an epoxy group.

66. (new) The substrate of claim 61, wherein the nanoscale particles comprise one or more compounds selected from $SiO_2$, $TiO_2$, $ZrO_2$, ZnO, $Ta_2O_5$, $SnO_2$ and $Al_2O_3$ and the polymerizable or polycondensable organic groups comprise organic radicals which comprise at least one of a (meth)acryloyl group, a vinyl group, an allyl group and an epoxy group.

67. (new) The substrate of claim 51, wherein the optical multi-layer system comprises an interference layer system.

68. (new) The substrate of claim 67, wherein the optical multi-layer system comprises an antireflection layer system.

69. (new) The substrate of claim 51, wherein one or more organically crosslinked layers are formed at a temperature of up to about 150°C.

70. (new) The substrate of claim 69, wherein one or more organically crosslinked layers are formed at a temperature of up to about 130°C.

71. (new) The substrate of claim 51, wherein (g) is carried out at a temperature of at least 400°C.

72. (new) The substrate of claim 71, wherein (g) is carried out at a temperature of up to 800°C.

73. (new) The substrate of claim 71, wherein (g) is carried out at a temperature of up to 600°C.

74. (new) A crystalline substrate comprising an optical multi-layer system thereon, which substrate is obtainable by

(a) applying a first free-flowing composition which comprises nanoscale inorganic solid particles comprising at least one of a polymerizable and a polycondensable organic group to at least one surface of a crystalline substrate;

(b) at least one of polymerizing and polycondensing the organic groups of the solid particles to form a first, organically crosslinked layer on the at least one surface;

(c) applying a second free-flowing composition which comprises nanoscale inorganic

solid particles without at least one of a polymerizable and a polycondensable organic group to the organically crosslinked layer of (b), the second composition giving rise to a second layer having a different refractive index than the first layer; and

(d) single-stage thermal consolidation of the organically crosslinked layer and burnout of organic constituents.

75. (new) The substrate of claim 74, wherein the crystalline substrate comprises one or more of silicon, lithium niobate, lithium tantalate, quartz, sapphire, PbS and selenium.

76. (new) The substrate of claim 74, wherein the crystalline substrate comprises one or more of a sheet, a watchglass, an instrument cover glass, a wafer, a crystalline detector and an optical filter.

77. (new) The substrate of claim 74, wherein the nanoscale particles comprise one or more compounds selected from oxides, sulfides, selenides and tellurides of semimetals and metals.

78. (new) The substrate of claim 74, wherein the nanoscale particles comprise one or more compounds selected from $SiO_2$, $TiO_2$, $ZrO_2$, ZnO, $Ta_2O_5$, $SnO_2$ and $Al_2O_3$ and the polymerizable or polycondensable organic groups comprise organic radicals which comprise at least one of a (meth)acryloyl group, a vinyl group, an allyl group and an epoxy group.

79. (new) The substrate of claim 74, wherein (d) is carried out at a temperature of from 400°C to 800°C.

80. (new) The substrate of claim 79, wherein (d) is carried out at a temperature of from 400°C to 600°C.